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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,847

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Francisco Rojo Lulic

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WARE FRESSOLA VAN DER SLUYS &
ADOLPHSON, LLP
BRADFORD GREEN BUILDING 5
755 MAIN STREET, P O BOX 224
MONROE, CT 06468

EXAMINER

PRESTON, ERIK D

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,847

Applicant(s)

ROJO LULIC, FRANCISCO

Examiner

Erik D. Preston

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-28 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claim 12 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. For examination purposes claim 12 will be treated as if it were dependent upon claim 10. Appropriate correction is required.

Claim 27 is objected to because of the following informalities: In the 17th line of the claim, the phrase "...said tube..." lacks proper antecedent basis and, for examination purposes, will be interpreted as saying "...said bearing support tube..." Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9,10,13,14 & 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Hsieh (US 5562347 previously presented).

With respect to claim 9, Hsieh teaches an electric motor comprising: A stator assembly (Fig. 1, #42) and an external rotor assembly (Fig. 1, #50) adapted to be rapidly mated together; said external rotor assembly including a rotor cup coupled to a

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central shaft (Fig. 1, #52) having a proximal end adjacent said rotor cup and a distal end provided with an enlargement (as seen in Fig. 1, #59 & Fig. 2); said stator assembly including a bearing support tube (Fig. 1, #60) formed with an opening, facing said rotor cup for receiving said central shaft of said rotor assembly; a plurality of bearings (Fig. 1, #44 & 46) which are mounted on said shaft for insertion into the bearing support tube, radial outer surfaces of said bearings being guided in an inner opening of the bearing support tube (as seen in Fig. 2), said bearings serving to support said shaft, and of which a proximal bearing (Fig. 1, #44) is arranged closer to the rotor cup than a distal bearing (Fig. 1, #46), the shaft being axially displaceable with respect to the bearings; a retaining member (Fig. 1, #48), arranged between the rotor cup and the proximal bearing, said retaining member serving to immobilize at least the proximal bearing in its position in the bearing support tube after assembly; a spring member (Fig. 1, #56), effective between the proximal bearing and the rotor cup, that pushes the rotor cup away from the proximal bearing in order to push the enlargement provided on the shaft in the direction of the distal end of the distal bearing (which it inherently does as seen in the arrangement shown in Fig. 2); and a spacer (Fig. 1, #36) displaceably arranged in the bearing support tube (by way of a slot Fig. 1, #62) and defining a predetermined distance between the proximal bearing and the distal bearing (as seen in Fig. 2).

With respect to claim 10, Hsieh teaches the motor of claim 9, wherein the rotor cup is formed, on the said facing toward the proximal bearing, with a projection (the most distal part of the rotor cup that contacts the shaft as seen in Fig. 2) that is shaped for engagement (by way of the spring) against said retaining member.

With respect to claims 13 & 14, Hsieh teaches the motor of claims 9 & 10, wherein the enlargement provided on the shaft is a snap ring (Fig. 1, #59) adapted to engage against a distal end of the distal bearing.

With respect to claim 17, Hsieh teaches the motor of claim 9, further comprising a mounting flange (Fig. 1, #70) formed integrally with a rotor-cup-remote end of said bearing support tube.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 11,12,15,16,27 & 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh (US 5562347 previously presented) in view of Stone (US 3728563).

With respect to claims 11 & 12, Hsieh teaches the motor of claims 9 & 10, wherein the spacer is a hollow cylindrical element formed with a radially inwardly protruding projection, but it does not teach that said projection abuts the shaft. However, Stone teaches a spacer (Fig. 4, #86) that abuts a shaft (Fig. 4, #58). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the spacer of Hsieh in view of the spacer as taught by Stone because it provides a means for lubricating the bearings of the motor (Stone, Col. 3, Line 60-Col. 4, Line 5), and as merely a substitution of well-known equivalent spacer forms. It also would have been obvious to one of ordinary skill in the art at the time of the invention to extend the projections of Hsieh to come in contact with the shaft since it has been held that a

change in shape is not considered to be patentably distinct if it does not effect the utility of a device (In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

With respect to claims 15 & 16, Hsieh in view of Stone teaches the motor of claims 11 & 12, wherein the enlargement provided on the shaft is a snap ring (Fig. 1, #59) adapted to engage against a distal end of the distal bearing.

With respect to claim 27, Hsieh teaches a method of assembling a rotor assembly of an external-rotor electric motor, wherein said rotor assembly has a rotor cup, a central shaft, and a plurality of bearings, and said stator assembly has a bearing support tube, comprising the steps of: Securing the central shaft to said rotor cup (as seen in Fig. 2); mounting on said shaft, a compression spring, a retaining member, and a plurality of bearings, said bearings being slidable on the shaft; aligning said shaft with a central axis of said bearing support tube, and applying a compression force to said rotor assembly (to mount the bearings thereon), thereby compressing said spring, inserting said bearings into said bearing support tube and engaging said retaining member with said bearing support tube; and removing said compression force (after the mounting of the bearings), thereby causing the spring to expand, and to displace the bearings relative to said shaft so that said rotor assembly assumes said predefined axial relation to the bearing support (as seen in Fig. 2), but it does not teach pre-mounting the components on the shaft before inserting said shaft into said bearing support tube. However, Stone teaches an independently formed spacer (Fig. 4, #86) that can be mounted to a shaft before completing the assembly of a motor. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the spacer

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of Hsieh in view of the spacer as taught by Stone because it provides a means for lubricating the bearings of the motor (Stone, Col. 3, Line 60-Col. 4, Line 5), and it also would have been obvious to one of ordinary skill in the art at the time of the invention to teach pre-mounting the components (including the independently formed spacer of Stone rather than the integrally formed spacer of Hsieh) on the shaft before inserting said shaft into said bearing support tube since it has been held that "selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results" (In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946)). It is also noted that even without the addition of the spacer of Stone, it would have been obvious to one of ordinary skill in the art at the time of the invention to include an independently formed spacer since it has been held that making a one piece component into two separate pieces is not considered to be patentably distinct (In re Dulberg, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961)).

With respect to claim 28, Hsieh in view of Stone teaches the method of claim 27, and Hsieh teaches that said step of compression includes, after compressing said spring, continuing to apply force, thereby causing an axial projection formed on the rotor to push on the retaining member (by way of the spring, as seen in Fig. 2) at a location adjacent to a nearest one of said plurality of bearings, and to thereby transfer the force to that nearest bearing.

Claims 18,19,22,23 & 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh (US 5562347 previously presented) in view of Wrobel et al. (US 4613778 previously cited). Hsieh teaches the motor of claims 9,10,13,14 & 17,

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wherein the bearing support tube has an opening facing the rotor cup, but it does not teach that the bottom of the bearing support tube is closed. However, Wrobel teaches a bearing support tube with a closed bottom (Fig. 2, #18). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the bearing support tube of Hsieh in view of the bearing support tube as taught by Wrobel because it provides a means for eliminating or substantially reducing axial oscillations in a motor (Wrobel, Col. 2, Lines 17-24).

Claims 20,21,24 & 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh (US 5562347 previously presented) in view of Stone (US 3728563) further in view of Wrobel et al. (US 4613778 previously cited). Hsieh in view of Stone teaches the motor of claims 11,12,15 & 16, and Hsieh teaches that the bearing support tube has an opening facing the rotor cup, but it does not teach that the bottom of the bearing support tube is closed. However, Wrobel teaches a bearing support tube with a closed bottom (Fig. 2, #18). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the bearing support tube of Hsieh in view of the bearing support tube as taught by Wrobel because it provides a means for eliminating or substantially reducing axial oscillations in a motor (Wrobel, Col. 2, Lines 17-24).

Response to Arguments

Applicant's arguments with respect to claims 9-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 3990141, US 5073735 & US 6144135

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is (571)272-8393. The examiner can normally be reached on Monday through Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571)272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



02/14/2006

